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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FORMAN, BETTY J

ART UNIT PAPER NUMBER

1634

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/066,518

Applicant(s)

FISHER ET AL.

Examiner

BJ Forman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,13-19 and 44-46 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) 14 and 15 is/are allowed.
6) ☒ Claim(s) 1-10,13,16-19 and 44-46 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

1. This action is in response to papers filed 3 May 2006 in which the previous rejections were traversed. Applicant's arguments have been thoroughly reviewed and are discussed below.

The previous rejections in the Office Action dated 13 March 2006 are maintained.

Claims 1-10, 13-19, 44-46 are under prosecution.

Claims 15-16 are in condition for allowance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-10, 13, 18-19 and 44-46 are rejected under 35 U.S.C. 102(a) & (e) as being anticipated by Kowallis et al (U.S. Patent No. 6,228,659, issued 8 May 2001).

Regarding Claims 1 and 44, Kowallis et al teach a method for producing multiple arrays on a substrate (Fig. 1), wherein each array has multiples rows of features separated by inter-feature areas (Fig. 1B), the multiple arrays separated by inter-array areas, larger than the inter-feature areas (Column 2, lines 1-52 and Fig. 1) wherein the arrays are arranged in sets

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(e.g. row 88 represents one set, row 90 represents a second set, Fig. 6) and the method comprising dispensing drops onto the substrate from a drop dispensing head that dispenses while maintaining a gap (e.g. ink-jet deposition, Column 2, lines 22-25; Column 4, lines 20-23 and Claim 12), moving the head and substrate relative to one another along a bi-directional path wherein the moving comprises moving the head in a direction along an array set, moving the head in the opposite direction along the second array set without intervening movement of the head (first pass, direction 96 along array set 88, second pass in direction 98 along array set 90 (Fig. 6, Column 5, line 64-Column 6, line 10)).

Kowallis teaches the method wherein the head moves along the arrays for dispensing (Abstract) while moving the substrate and head relative to each other (i.e. the dispensing head moves providing the “relative movement” between the head and substrate, Fig. 2 & 6).

Kowallis further teaches displacement of the print head in a sideways orientation (distance “d” along the y-axis as illustrated in Fig. 5; Column 5, line 37-Column 6, line 11). Kowallis teach the deposition wherein line #96 is first printed in the arrays of row #88, then the dispenser is displaced along the y-axis to print line #98 in the arrays of row #90 (Fig. 5-6). Furthermore, the printing of line #98 is in a direction opposite of line #96 (Column 6, lines 1-10). Hence, Kowallis clearly anticipates the newly claimed sideways displacement.

Regarding Claim 2, Kowallis et al teach the arrays are biopolymer arrays (Column 1, lines 9-11).

Regarding Claim 3, Kowallis et al teach the first and second array sets are adjacent (e.g. row 88 represents one set, row 90 represents a second set, Fig. 6).

Regarding Claim 4, Kowallis et al teach the method wherein repeating is with the same two array sets (array sets 88 and 90 are bi-directionally printed, Column 5, line 64-Column 6, line 11).

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Regarding Claim 5, Kowallis et al teach the method wherein each repeat of (b) is with a new array i.e. the head advances to the next array row for bi-directional printing (Column 5, line 64-Column 6, line 11).

Regarding Claim 6, Kowallis et al teach the method wherein each new second array set is adjacent the first set (Fig. 6, Column 5, line 64-Column 6, line 11).

Regarding Claim 7, Kowallis et al teach repeated relative movement between the head and substrate (Column 5, line 64-Column 6, line 11).

Regarding Claim 8, Kowallis et al teach the method wherein the head is re-loaded between repetitions (supplied from on-board reservoir, Column 4, lines 20-22). It is noted that the claims do not define a specific point during the repetitions, the head is re-supplied. Hence, the on-board supplying of Kowallis is encompassed by the claimed re-loading.

Regarding Claim 9, Kowallis et al teach the method wherein the repeated movement of the head is parallel and offset (Fig. 6, Column 5, line 64-Column 6, line 11).

Regarding Claim 10, Kowallis et al teach the method wherein the rows of features are straight lines (Fig. 1B).

Regarding Claim 13, Kowallis et al teach the method wherein the arrays have the same layout (Fig. 1B and 4, Column 4, lines 42-67).

Regarding Claim 18, Kowallis et al teach the method wherein the head has multiple dispensers (Fig. 2, Column 5, lines 37-63).

Regarding Claim 19, Kowallis et al teach the method wherein the dispensers are pulse jets Column 2, lines 22-25; Column 4, lines 20-23 and Claim 12)

Regarding Claim 45, Kowallis et al teach the arrays are biopolymer arrays (Column 1, lines 9-11).

Regarding Claim 46, Kowallis et al teach the method wherein the head has multiple dispensers (Fig. 2, Column 5, lines 37-63).

Response to Arguments

4. Applicant asserts that claimed sideways movement “requires that the assembly turn 90° between one array set and another”. Applicant argues that Kowallis does not teach this element of the claims. The argument has been considered but is not found persuasive because the claims are not drawn to turning the assembly or a 90° turn as asserted. Therefore, the argument is not commensurate in scope with the claims. The claims do require a dispensing head that is displaced in a sideways orientation between array sets. As cited above, Kowallis teaches displacement of the print head in a sideways orientation (distance “d” along the y-axis as illustrated in Fig. 5; Column 5, line 37-Column 6, line 11). Therefore, Kowallis teaches the method as claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kowallis et al (U.S. Patent No. 6,228,659, issued 8 May 2001) in view of Gordon et al (U.S. Patent No. 5,486,452, issued 23 January 1996).

Regarding Claim 16, Kowallis et al teach the method for producing multiple arrays on a substrate (Fig.1), wherein each array has multiples rows of features separated by inter-feature areas (Fig. 1B), the multiple arrays separated by inter-array areas, larger than the inter-feature areas (Column 2, lines 1-52 and Fig. 1) wherein the arrays are arranged in sets (e.g. row 88

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represents one set, row 90 represents a second set, Fig. 6) whereby a plurality of arrays are produced (Kowallis, Abstract) but they are silent regarding separation of the arrays.

However, preparation of multiple-array substrates and separation of the arrays was well known in the art at the time the claimed invention was made as taught by Gordon et al who teaches that such array production and separation provides for mass production of a test system (Column 6, lines 30-33). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the array separation of Gordon et al to the multiple arrays of Kowallis et al for the expected benefit of mass production of the test system as desired in the art (Gordon et al, Column 6, lines 30-33).

Response to Arguments

7. Applicant asserts that Gordon does not cure the deficiency of Kowallis and therefore the combination of Kowallis and Gordon does not teach the claimed invention. The argument has been considered but is not found persuasive because, as stated above, Kowallis is not deemed deficient.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kowallis et al (U.S. Patent No. 6,228,659, issued 8 May 2001) in view of Zeleny et al (U.S. Patent No. 6,215,894, issued 10 April 2001).

Regarding Claim 17, Kowallis et al teach the method for producing multiple arrays on a substrate (Fig.1), wherein each array has multiples rows of features separated by inter-feature areas (Fig. 1B), the multiple arrays separated by inter-array areas, larger than the inter-feature areas (Column 2, lines 1-52 and Fig. 1) wherein the arrays are arranged in sets (e.g. row 88 represents one set, row 90 represents a second set, Fig. 6) but they are silent regarding addition of identifiers to the substrate.

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However, array identifiers were well known in the art at the time the claimed invention was made as taught by Zeleny et al who teaches that placing identifiers on the array, provides for automated control of array scanning and selection of proper analytical protocols, increases speed of processing and reduces probability of error (Column 1, lines 5-1 and Column 2, lines 48-52). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the array identifiers taught by Zeleny et al to the arrays of Kowallis for the expected benefit of providing for automated control of array scanning and selection of proper analytical protocols, increased speed of processing and reduced probability of error as taught by Zeleny et al (Column 1, lines 5-1 and Column 2, lines 48-52).

Response to Arguments

9. Applicant asserts that Zeleny does not cure the deficiency of Kowallis and therefore the combination of Kowallis and Zeleny does not teach the claimed invention. The argument has been considered but is not found persuasive because, as stated above, Kowallis is not deemed deficient.

Allowable Subject Matter

10. Claims 14-15 are drawn to methods of making multiple arrays on a substrate using bi-directional printing. The claims further define the printing wherein a majority (e.g. 80%) of the rows of an array are printed while the print head is moving in the same direction. The prior art teaches single directional and bi-directional printing. However, the prior art does not teach or suggest bi-directional printing wherein a majority of rows are printed during movement along the same direction as claimed.

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Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner
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